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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,002	02/15/2001	Alan F. Graves	12660ROUS02U	6057
626	7590	12/02/2003	EXAMINER	
NORTEL NETWORKS LIMITED P. O. BOX 3511, STATION C OTTAWA, ON K1Y 4H7 CANADA			CURS, NATHAN M	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,002

Applicant(s)

GRAVEŠ ET AL

Examiner

Nathan Curs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "114" has been used to designate both a channel impairment compensation function and a multiplexer. According to the specification, the multiplexer should have the reference character "116" (page 6, line 16). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 124, 126, 128, 130, 132 and 138. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "line scanner", "wrapper readers", "connection comparison", and "channels performance monitor" (page 6, lines 28-29) and "a WDD", "a switch", "three alternating paths", "positive dispersive medium", "negative dispersive medium", and "two band-pass filters" (page 12, lines 29-37) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: the phrase "channel impairment signal responsive to" contains errors (page 2, line 15); the phrase "An analog, digital lambda converter" contains errors (page 3, lines 19-20); "individual fiber 106" should be "individual fiber 102" (page 6, line 37); the phrase "WDD outputs 105" is incorrect because element 105 in the referred figure does not correspond to outputs of a WDD (page 8, line 12); "output WDM 114" should be "output WDM 116" (page 8, line 26 and line 31; page 9, line 2; page 10, line 7), "centralized Impairment Control Block 112" should be "centralized Impairment Control Block 114" (page 8, line 27); the term "PSE" is not defined (page 11, line 33); "uses the date" should be "uses the data" (page 12, line 3); "dispersion compensation measurement block 132" should be "dispersion compensation measurement block 135" (page 12, line 26); the phrase "the output of the amplifier is fed into a WDD 106" is incorrect because none of the elements 106 in the referred figure receive the output signal of the amplifier in the dispersion compensation measurement block 135 (page 12, line 30); "different from of fiber" should be "different form of fiber" (page 12, line 35).

Appropriate correction is required.

Claim Objections

5. Claim 1 is objected to because of the following informalities: "means for multiplexing a plurality of channels into an optical" is incomplete (page 21, line 10). Appropriate correction is required.

Claim Rejections - 35 USC § 112

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6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 4-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed "fast line scanners" and "slow line scanners" are not shown in the figures, and their definitions are not disclosed in the specification.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8 and 9 recite the limitation "the slow line scanners" (page 21, lines 30 and 33).

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 13, 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukashiro et al. (US Patent No. 6362905).

Regarding claim 13, Fukashiro et al. disclose a photonic node for multi-vendor and multi-carrier interworking comprising means for performance monitoring impairment compensating (fig. 11 and col. 13, lines 36-50; col. 1, line 64 to col. 2, line 12; and col. 2, lines 29-39).

Regarding claim 16, Fukashiro et al. disclose that the means for monitoring include means for detecting and isolating photonic node specific faults and mis-connects, and means for triggering protection switching to redundant modules when appropriate (Fukashiro et al.: col. 7, lines 4-41; and col. 13, line 51 to col. 14, line 10).

Regarding claim 17, Fukashiro et al. disclose that the means for monitoring includes photonic node output channel power level compensation responsive thereto (Fukashiro et al.: fig. 4 and col. 7, lines 4-41; col. 1, line 64 to col. 2, line 12; and col. 2, lines 29-39).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-3, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (US Patent No. 6424445) in view of Fukashiro et al. (US Patent No. 6362905).

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Regarding claim 1, Tsushima et al. disclose a photonic network node comprising: means for demultiplexing an optical signal into channels (fig. 16, elements 201); photonic switch fabric (fig. 16, element 123); and means for multiplexing a plurality of channels into an optical signal (fig. 16, elements 202). Tsushima et al. do not disclose means for monitoring before and after the photonic switch fabric, means for protecting channels responsive to the monitoring means, or means for compensating for channel impairment responsive to the monitoring means. Fukashiro et al. disclose an optical cross-connect with means for monitoring before and after the photonic switch fabric (fig. 11, elements 24 and col. 13, lines 36-50), means for protecting channels responsive to the monitoring means (fig. 4 and col. 7, lines 4-41; and fig. 11 and col. 13, line 51 to col. 14, line 10), and means for compensating for channel impairment responsive to the monitoring means (fig. 4 and col. 7, lines 4-41; and col. 1, line 64 to col. 2, line 12; and col. 2, lines 29-39). It would have been obvious to one skilled in the art at the time of the invention to use the optical cross-connect disclosed by Fukashiro et al., in the optical node of Tsushima et al., to provide signal protection switching and compensation responsive to signal monitoring.

Regarding claim 2, Tsushima et al. in view of Fukashiro et al. disclose that the photonic switch fabric includes a plurality of optical switch planes, including switching groups of wavelengths (Tsushima et al.: fig. 14 and 15 and col. 13, line 36 to col. 14, line 11) as well as individual demultiplexed wavelengths (Tsushima et al.: fig. 16 and col. 14, lines 12-34).

Regarding claim 3, Tsushima et al. in view of Fukashiro et al. disclose that the means for demultiplexing includes a 1:M demultiplexer (Tsushima et al.: fig. 16, element 201).

Regarding claim 11, Tsushima et al. in view of Fukashiro et al. disclose means for monitoring including channel performance monitors (Fukashiro et al.: fig. 11, elements 24 and col. 13, lines 36-50).

Regarding claim 12, Tsushima et al. in view of Fukashiro et al. disclose that the means for multiplexing includes an M:1 multiplexer (Tsushima et al.: fig. 16, element 202).

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (US Patent No. 6424445) in view of Fukashiro et al. (US Patent No. 6362905) as applied to claims 1-3 and 11-12 above, and further in view of Harley et al. (US Patent No. 6323978).

Regarding claim 10, Tsushima et al. in view of Fukashiro et al. disclose a means for monitoring and optical protection, but do not disclose that the means for monitoring includes wrapper readers. Harley et al. disclose an optical channel overhead, used as a communication channel for optical protection or for remote monitoring between transmitters and receivers (col. 1, lines 12-42), and an optoelectronic converter for detecting an optical signal having an embedded control signal and demodulating the control signal to produce control information (col. 3, lines 26-39). It would have been obvious to one skilled in the art at the time of the invention to use optical channel overheads as disclosed by Harley et al., in the system of Tsushima et al. in view of Fukashiro et al., for end-to-end channel monitoring and controlling channel routing.

15. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukashiro et al. (US Patent No. 6362905) in view of Tsushima et al. (US Patent No. 6424445).

Regarding claim 14 and 15, Fukashiro et al. disclose monitoring in the optical cross-connect used to control protection switching (Fukashiro et al.: col. 7, lines 4-41; and col. 13, line 51 to col. 14, line 10), but do not disclose a supervisory channel used for communicating between nodes and for controlling the optical cross-connects. Tsushima et al. disclose an optical node where a supervisory channel is used for communicating between nodes and for

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controlling the optical cross-connects (Tsushima et al.: abstract and col. 1, lines 14-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a supervisory channel, as disclosed by Tshushima et al., between multiple nodes of Fukushima et al., to communicate monitoring and control information between nodes for network wide performance and fault management, and the triggering of network wide protection and restoration.

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US Patent No. 6362905) in view of Essiambre (US Patent No. 6583907).

Regarding claim 18, Fukushima et al. disclose an optical node with means for monitoring the node output channels (fig. 11, element 24), but do not disclose that the monitoring includes photonic node output channel dispersion compensation. Essiambre discloses adjustable dispersion compensation fiber gratings in a multichannel system where the dispersion is selected on a per-channel basis (abstract, col. 6, lines 24-38; and col. 7, lines 27-33), and where selecting the adjustable dispersion amount on a per-channel basis inherently requires monitoring the per-channel dispersion characteristics. It would have been obvious to one skilled in the art at the time of the invention to add adjustable dispersion compensation and dispersion monitoring on a per-channel basis to the node output channel monitoring of Fukushima et al., to achieve optical system performance, where the different channels have different dispersion amounts.

17. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US Patent No. 6362905) in view of Chaudhuri et al. (US Patent No. 6587235).

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Regarding claim 19, Fukushima et al. disclose a node with an optical cross-connect, but do not disclose means for interfacing with electrical signaling network nodes. Chaudhuri et al. disclose a node with an optical cross-connect, including interfaces with electrical signals using electrical-to-optical conversion (fig. 5; col. 5, lines 22-36). It would have been obvious to one skilled in the art at the time of the invention to use electrical-to-optical conversion disclosed by Chaudhuri et al., in the node of Fukushima et al., in order to interface with electrical signals in addition to optical signals.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Published Patent Application No. 09/858345 – Note a wavelength selective optical cross-connect, expandable and repairable on a wavelength or waveband basis, and including amplification, power equalization and automatic or remotely actuated switching (abstract).

19. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

M. R. Sedighian
M. R. SEDIGHIAN
Patent Examiner
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